





RECLOSABLE CLOSURE FOR CANS

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Cited documents:

 US4887712
 US4433792
 US4463866
 WO9424006

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Abstract of WO0001587

A can closure, comprising a plate (2) capable of rotating on the horizontal plane and oscillating on the vertical plane around a pin (3) located on the upper wall (11) of a can (1) provided with a weakening opening area (12); it being provided that the plate comprises a pressure area (8) designed to force the weakening area (12) inside the can (1) and a closure area (5) with a lower raised shape (6) used to temporarily close the opening (12).

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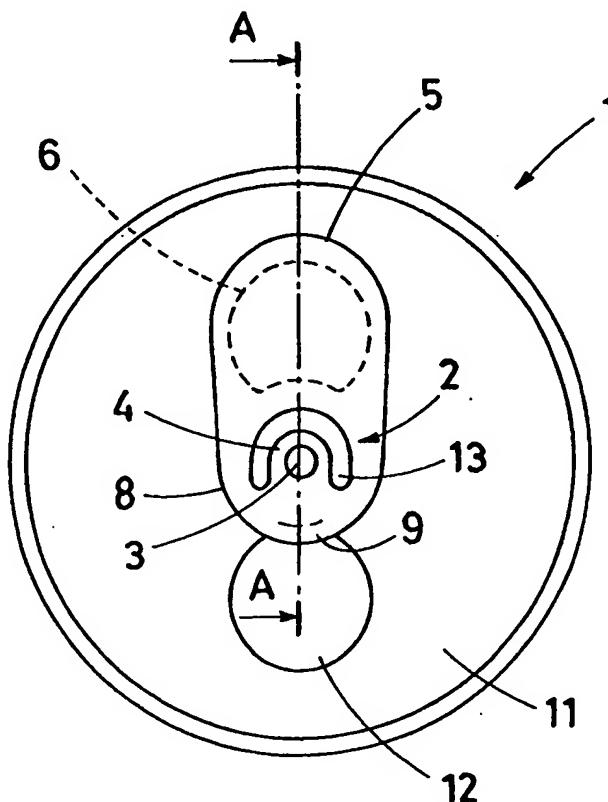


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/IT99/00194 (22) International Filing Date: 30 June 1999 (30.06.99) (30) Priority Data: FI98A000155 1 July 1998 (01.07.98) IT (71) Applicant (for all designated States except US): B.F. ELET- TROMECCANICA S.R.L. [SM/SM]; Strada C. Simoncini, 7, RSM-47894 Chiesanuova (SM). (72) Inventor; and (75) Inventor/Applicant (for US only): RIMINUCCI, Giancarlo [IT/IT]; Via Montefeltresca, 9bis, I-61020 Pietrarubbia (IT). (74) Agent: BALDI, Claudio; Piazza Ghislieri, 3, I-60035 Jesi (IT).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>

(54) Title: RECLOSABLE CLOSURE FOR CANS**(57) Abstract**

A can closure, comprising a plate (2) capable of rotating on the horizontal plane and oscillating on the vertical plane around a pin (3) located on the upper wall (11) of a can (1) provided with a weakening opening area (12); it being provided that the plate comprises a pressure area (8) designed to force the weakening area (12) inside the can (1) and a closure area (5) with a lower raised shape (6) used to temporarily close the opening (12).



Description

Reclosable closure for cans

Field of the invention

The present invention concerns the sector of liquid food containers, particularly the cans that are commonly used for beverage transportation and consumption.

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State of the art

As it is known, cans are probably the most popular container used for the transportation and consumption of alcoholic drinks, such as beer, or non-alcoholic beverages, such as orange juice, etc.

10 The most popular closure is composed of a plate pivoted at the centre of the upper metal wall of the can, which features a lifting ring on one side and a pressure wing on the other side. By lifting the ring, the wing forces a weakened metal portion, causing its lowering inside the can, which opens.

The unresolved drawback of this type of cans is the need for a rapid
15 consumption of the beverage, once the cans have been opened. The rapid consumption is required both to avoid the deterioration of the beverage (loss of bubbles for fizzy drinks) and the spill of the beverage when moving the can.

This inconvenience is due to the lack of a simple, reliable device capable of
20 opening and closing the can several times.

Purpose of the invention

The purpose of the present invention is to remedy the above inconvenience and provide for a re-openable can closure characterised by low cost, easy
25 application on traditional cans, and hygienically safe.

Summary of the invention

This purpose has been achieved by means of a re-openable can closure

composed of a plate pivoted at the upper wall of the can and shaped at the lower end. The shape of the plate is such that it can be temporarily engaged with the can opening through pressure.

According to the present invention, once the can has been opened for the first time, the plate is rotated until the lower shape is placed on top of the can opening. By simply pressing the plate, the opening is sealed and the can can be stored or handled with liquid inside, without the above-mentioned inconvenience. To re-open the can, the user will only need to lift the plate and rotate it around the pin in order to place it to the opposite part of the upper wall of the can, which is not affected by the opening.

This operation can be repeatedly carried out with no hygienic risks, since the shape that re-closes the can is constantly directed downwards and therefore protected.

15 Detailed description of the invention

This and other advantages of the invention will become evident through the description and drawings below, which are intended for purposes of illustration and not in a limiting sense, whereby:

- Figure 1 is a schematic view of the closure according to the present invention applied to a can seen from above;

- Figure 2 is a cross-section according to the A-A line of the plate shown in Figure 1.

In Figure 1 number (1) indicates an ordinary can. The upper wall (11) of the can features a weakening area (12) with an approximately circular shape, designed to be the opening of the can. A substantially elliptical plate (2) is capable of rotating on the horizontal plane around a pin (3) located in the centre of the wall (11). Moreover, the plate (2) is capable of oscillating in vertical direction, being connected to the pin (3) by means of a tongue (4) located inside a slot (13) of the plate (2).

The first portion (5) of the plate (2) features a raised shape (6) in its lower part, shown in partial cross-section in Figure 2. The shape (6) (shown with a dotted line in Figure (1)) basically has the same external profile of the

opening (12) and features a slightly projecting retention edge (7) so as to allow for inserting and extracting it from the opening (12) of the can.

The second portion (8) of the plate (2) features a pressure area (9) embossed with respect to the pin (3) and overlying the weakening area (12) of the can.

During operation, the plate (2) is initially arranged as shown in Figure 1, with the pressure area (9) overlying the weakening area (12). In order to open the can, an upward traction is exerted on the first portion (5) to push downwards the embossed area (9) of the plate (2) in oscillation on the pin (3). The area (9) then exerts pressure on the area (12) to make it disappear inside the can which shows the opening (12).

According to the invention, the can is closed by rotating the plate (2) until the shape (6) overlies the opening (12). By pressing the first portion (5), the shape (6) is inserted through a slight elastic pressure of the edge of the opening (12) and remains in place because of the retention edges until the can is re-opened by simply forcing upwards the portion (5) and rotating the plate (2) in the previous position.

Advantageously, the closure of the opening (12) by means of the shape (6) features a sufficient seal to avoid the partial spilling of the can contents. To this end, a suitable shape of the edge (7) and/or the presence of a seal can be provided.

The present invention has been described with reference to preferred embodiments. However, equivalent modifications can be made by any expert without exiting the scope of protection granted to the present industrial invention.

Claims

1. Closure for cans, comprising a plate (2) capable of rotating on the horizontal plane and oscillating on the vertical plane around a pin (3) located on the upper wall (11) of a can (1), provided with a weakening opening area (12); it being provided that the plate comprises a pressure area (9) designed
5 to force the weakening area (12) inside the can (1), characterised by the fact that the plate comprises a closure area (5) with a lower raised shape (6) used to temporarily close the opening (12).
2. Closure according to claim 1, characterised by the fact that the plate (2) can oscillate in vertical direction on the pin (3) by means of a tongue (4)
10 located inside a slot (13) of the plate (2).
3. Closure according to claim 1, characterised by the fact that the weakening area and the shape (6) feature a substantially circular profile.
4. Closure according to claim 1, characterised by the fact that the shape (6) features a raised edge (7) so as to allow for inserting and extracting it through
15 a slight elastic pressure of the opening (12) of the can.
5. Closure according to claim 1, characterised by the fact that the shape (6) closes the opening (12) by sealing it.
6. Closure according to claim 1, characterised by the fact that the shape (6) is provided with a seal or seal coating.

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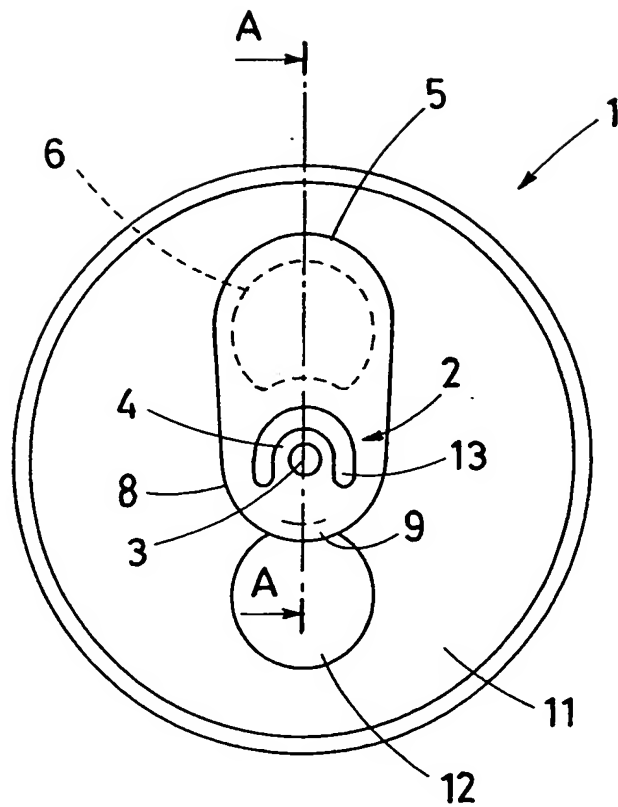


FIG. 1

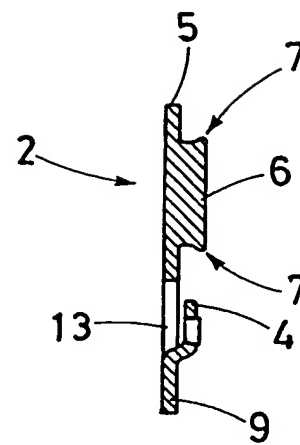


FIG. 2

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 99/00194

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D17/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 887 712 A (WELLS ROBERT A) 19 December 1989 (1989-12-19) the whole document ---	1-6
X	US 4 433 792 A (MANDEL GEORGE) 28 February 1984 (1984-02-28) the whole document ---	1-6
X	US 4 463 866 A (MANDEL GEORGE) 7 August 1984 (1984-08-07) column 3, line 53 -column 5, last line; figures 1-8 ---	1-6
X	WO 94 24006 A (GUITART) 27 October 1994 (1994-10-27) claims; figures -----	1-3

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IT 99/00194

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WO 9424006	A	27-10-1994	AU 4041393 A	08-11-1994